

Amendments to the Claims

Please cancel claims 58 and 59 without prejudice.

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, said method comprising:

detecting a change in a throttle signal from a first level to a second level or from the second level to the first level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle in response to a throttle switch controlled by a person in physical contact with the toy vehicle, wherein the first level corresponds to the throttle signal produced when the person engages the throttle switch, and wherein the second level corresponds to the throttle signal produced when the person disengages the throttle switch;

generating a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

applying the transition signal to affect operation of the motor.

2. (Previously Presented) The method according to claim 1, wherein the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

3. (Currently Amended) The method according to claim 42, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

4. (Original) The method according to claim 1, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

5. (Canceled)

6. (Previously Presented) The method according to claim 1, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity.

7. (Previously Presented) The method according to claim 1, wherein the transition signal ramps power to the motor.

8. (Previously Presented) The method according to claim 1, wherein the operation of the motor comprises a non-linear transition from a first angular velocity to a second angular velocity.

9. (Previously Presented) The method according to claim 1, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

10. (Previously Presented) The method according to claim 1, further comprising:
receiving a shift signal indicative of an activation of a control for changing a direction of motion for the toy vehicle;
responsive to the shift signal and if power is being applied to the motor,
initiating a delay; and
applying the transition signal to the motor.

Applicant : Norman et al.
Serial No. : 10/076,795
Filed : February 12, 2002
Page : 4 of 24

Attorney's Docket No.: 14489-004001

11-40. (Canceled)

41. (Currently Amended) A computer-readable medium having stored thereon sequences of instructions, wherein the sequences of instructions include instructions, when executed by a processor, that cause the processor to:

detect a change in a throttle signal from a first level to a second level or a second level to a first level, the throttle signal operable to induce motion via a motor operating as a drive mechanism of the toy vehicle in response to a switch controlled by a person in physical contact with the toy vehicle, wherein the first level corresponds to the throttle signal produced when the person engages the throttle switch, and wherein the second level corresponds to the throttle signal produced when the person disengages the throttle switch;

generate a transition signal based on the change in the throttle signal, the transition signal comprising at least one signal level intermediate to a third signal level corresponding to the first level and a fourth signal level corresponding to the second level, wherein a transition from the third signal level to the at least one intermediate signal level to the fourth signal level occurs over a significantly longer time period than a time period for the change in the throttle signal from the first level to the second level; and

apply the transition signal to effect operation of a motor operating within a toy vehicle.

42-45. (Canceled)

46. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal comprises a pulse width modulation signal having a plurality of different duty cycles, each different duty cycle comprising a signal level of the transition signal.

47. (Currently Amended) The computer readable medium of claim 4146, wherein the pulse width modulation ranges from approximately a 20 percent to approximately a 100 percent duty cycle.

48. (Previously Presented) The computer readable medium of claim 41, wherein the motor includes a high and low terminal, the transition signal being applied to the low terminal of the motor.

49. (Previously Presented) The computer readable medium of claim 41, wherein the operation of the motor comprises a substantially linear transition from a first angular velocity to a second angular velocity.

50. (Previously Presented) The computer readable medium of claim 41, wherein the transition signal ramps power to the motor.

51. (Previously Presented) The computer readable medium of claim 41, wherein the operation of the motor comprises a non-linear transition from a first angular velocity to a second angular velocity.

52. (Previously Presented) The computer readable medium of claim 41, wherein the change in the throttle signal from the first level to the second level comprises a binary step function and the transition of the transition signal occurs over a time span of at least one second.

53. (Previously Presented) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

receive a shift signal indicative of an activation of a control for changing a direction of motion for the toy vehicle;

if power is being applied to the motor,

initiate a delay; and

apply the transition signal to the motor.

54-59. (Canceled)

60. (Previously Presented) The computer readable medium of claim 41, wherein the instructions further cause the processor to:

detect a change in the throttle signal from the second level to the first level followed by a second change in the throttle signal from the first level to the second level within a predetermined time;

generate a second transition signal in response to detecting the second change within the predetermined time of detecting the change from the second level to the first level, the second transition signal operable to ramp up power to the motor starting from a power level that depends on a time duration between the change from the second level to the first level and the second change.

61. (Previously Presented) The computer readable medium of claim 60, wherein the power to the motor is ramped up by increasing a duty cycle of a pulse width modulation.

62. (Currently Amended) A method for controlling acceleration of a toy vehicle configured to be operated by a person, the method comprising:

detecting a binary throttle signal produced ~~in response to a throttle switch controlled by when a person in physical contact with the toy vehicle engages a throttle switch, wherein the binary throttle signal is not produced when the person disengages the throttle switch, and wherein the binary throttle signal is~~ operable to induce motion using a motor operating as a drive mechanism of the toy vehicle;

generating a transition signal based on the binary throttle signal to cause a delay in applying to the motor a power level associated with the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

63. (Previously Presented) The method of claim 62 wherein the binary throttle signal is generated by a binary switch.

64. (Previously Presented) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a second power level and generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level.

65. (Previously Presented) The method of claim 64 wherein the transition signal comprises a pulse width modulated signal.

66. (Previously Presented) The method of claim 65 wherein the first power level corresponds to a twenty percent duty cycle level of the transition signal and the second power level corresponds to a one hundred percent duty cycle level of the transition signal.

67. (Previously Presented) The method of claim 62 wherein generating a transition signal comprises delaying applying power to the motor in response to a shift signal for changing a direction of motion for the toy vehicle.

68. (Previously Presented) The method of claim 62 wherein:

detecting the binary throttle signal comprises detecting a change, within a predetermined time period, from a high signal to a low signal followed by a change from the low signal to the high signal, the low signal operable to remove power from the motor;

the power level associated with the binary throttle signal comprises a second power level and the second power level is associated with the high signal; and

generating a transition signal comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the second power level, wherein the first power level depends upon an amount of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

69. (Previously Presented) The method of claim 68 wherein the first power level is determined in accordance with an algorithm that decreases the first power level with increasing amounts of time between the change from the high signal to the low signal and the change from the low signal to the high signal.

70. (Previously Presented) The method of claim 69 wherein the algorithm calculates the first power level using a linear decay from a one hundred percent duty cycle to a twenty percent duty cycle.

71. (Previously Presented) The method of claim 62 wherein the power level associated with the binary throttle signal comprises a voltage with a one hundred percent duty cycle.

72. (Currently Amended) An article comprising a machine-readable medium storing instructions for causing data processing apparatus to perform operations comprising:

detecting an activation level of a binary throttle signal produced ~~in response to a throttle switch controlled by when a person in physical contact with the toy vehicle engages a throttle switch, wherein the binary throttle signal is not produced when the person disengages the throttle switch, and wherein the activation level of the binary throttle signal is~~ operable to induce motion using a motor operating as a drive mechanism of a toy vehicle;

generating a transition signal in response to detecting the activation level of the binary throttle signal to cause a delay in applying to the motor a maximum power level associated with the activation level of the binary throttle signal; and

applying power to the motor in accordance with the transition signal.

73. (Previously Presented) The article of claim 72 wherein the binary throttle signal is generated by a binary switch.

74. (Previously Presented) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level.

75. (Previously Presented) The article of claim 74 wherein the transition signal comprises a pulse width modulated signal.

76. (Previously Presented) The article of claim 72 wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises delaying applying power to the motor in response to a shift signal operable to effect a change in a direction of motion for the toy vehicle.

77. (Previously Presented) The article of claim 72 wherein the instructions further cause data processing apparatus to perform operations comprising:

detecting a change in the binary throttle signal from the activation level to a deactivation level followed, within a predetermined time period, by a change from the deactivation level to the activation level, the deactivation level operable to remove power from the motor; and

wherein generating a transition signal to cause a delay in applying to the motor a maximum power level comprises generating a transition signal operable to increase power applied to the motor over a period of time from a first power level to the maximum power level, wherein the first power level depends upon an amount of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

78. (Previously Presented) The article of claim 77 wherein the first power level is determined in accordance with an algorithm that provides a decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

79. (Previously Presented) The article of claim 78 wherein the algorithm provides a linearly decreasing first power level with increasing amounts of time between the change from the activation level to the deactivation level and the change from the deactivation level to the activation level.

80. (Previously Presented) The method of claim 72 wherein:

the power level associated with the activation level of the binary throttle signal comprises a direct current voltage; and

applying power to the motor in accordance with the transition signal comprises applying a pulse width modulated voltage with an increasing duty cycle to the motor.

81. (Previously Presented) The method of claim 1 wherein activation and deactivation of the throttle are each determined by actions of a person.